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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,819	03/07/2002	William P. Platt	H003001	7985

7590

07/11/2003

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EXAMINER

HANLEY, JOHN C

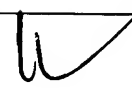
ART UNIT

PAPER NUMBER

2856

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/092,819	Applicant(s) PLATT, WILLIAM P. 	
	Examiner John C Hanley	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period of Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2856

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the structural relation between the noise source and drive electronics must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification is silent on the structural relationship between the noise source and the drive electronics. The specification merely states that the noise is injected into the drive electronics without stating where or how it is injected, especially with regard to how it is done for the purpose of reducing startup time and promoting lock. The specification is totally silent about whether this noise reaches the output to be injected into the drive combs, or whether the noise is used solely within the confines of the electronics, the PLL, or wherever.

Art Unit: 2856

Where is the noise injected? How/why does it help lock? Is the noise added to the comb drive? The specification does not teach one how to make and use this noise to reduce startup time.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-9, 15-20 and 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by White.

6. White shows a MEMS gyroscope structure for measuring angular rate using the Coriolis principle. On pages 50-52, White states, "Since the device has such a high Q, random noise in the system will excite the modes to some degree. This small motion will be picked up by the inner motor combs, and amplified by the motor loop, allowing the gyro to start with no external reference." The examiner takes official notice that noise in the electronics will inherently result from Johnson noise in the resistors, etc. Johnson noise is white noise. It will inherently start when system power is applied, because Johnson noise results from current through the resistances. It will be inherently band limited, as all circuits are. Being white noise, it contains all frequencies within the band limit. Thus, the tuning fork frequency is inherently within the band of white noise.

Art Unit: 2856

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-10, 15-20, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Hobbs.

9. White teaches that self-noise in a gyroscope drive circuit will improve startup. White lacks a teaching to purposely inject noise into a gyroscope drive to improve startup, or to center the noise around the fork tuning frequency to improve startup. Hobbs teaches to purposely inject a square wave of the tuning frequency into the drive of a tuning fork gyroscope at startup, and later replace the square wave with the normal mode sine wave at the tuning frequency. This is said to speed startup. The examiner interprets the square wave as being a sine wave plus noise, since a square wave is a sine wave combined with all of its harmonics, the harmonics being the noise injected solely to start the oscillation faster. This noise would be inherently band limited, as it would be in any circuit; and the tuning frequency would be in this band, and be centered within its harmonics. It would have been obvious to one skilled in the art at the time of applicant's invention to purposely inject noise into the drive electronics of White as taught in Hobbs, to further improve the starting time of White's gyroscope.

Art Unit: 2856

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ward et al shows a tuning fork gyro structure layout very similar to applicant's layout. Kato et al teaches a method and apparatus for shortening startup time of a gyro. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C Hanley whose telephone number is 703-305-5130. The examiner can normally be reached on M-F 9AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 703-306-4705. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



JCH

June 29, 2003

HELEN KWOK
PRIMARY EXAMINER
